

Notice of Allowability**Application No.**

10/539,980

Applicant(s)

ZWANENBURG ET AL.

Examiner

Trinh Vo Dinh

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/23/2008.
2. ☒ The allowed claim(s) is/are 1-13 and 25-27.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 05/23/2008.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Trinh Vo Dinh/
Primary Examiner, Art Unit 2821
May 26, 2008

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with *Leslie B. Wilson on May 23, 2008*.

The following changes have been made to the subject application:

Claims 1, 6, 9, 10, 11, 4-21 and 27 have been amended as follow:

1. (Currently amended) A light source control apparatus comprising:

a plurality of light sources, each light source emitting both a light signal at a discrete frequency and a reference signal at the discrete frequency, each light source having a different discrete frequency;

a photodetector optically coupled to the plurality of light sources, the photodetector designed to receive the light signals ~~from~~ for the plurality of light sources and to produce a received light signal based on the light signals from the plurality of light sources; and

a plurality of lock-in systems coupled to the photodetector to receive the received light signal signals ~~for the plurality of light sources~~, each lock-in system further being coupled to and associated with one of the plurality of light sources to receive the reference signal from the associated one of the plurality of light sources;

wherein each lock-in system produces an intensity value for the associated one of the plurality of light sources based on the received light signal signals ~~for the plurality of light sources~~ and the reference signal from the associated one of the plurality of light sources.

6. (Currently Amended) The apparatus of claim 1 wherein each lock-in system comprises:

a frequency multiplier; and

a filter, the filter coupled to the frequency multiplier;

wherein the intensity value for the associated one of the plurality of light sources is the product of the received light ~~signal~~ signals for the plurality of light sources and the reference signal from the associated one of the plurality of light sources processed through the frequency multiplier, and filtered to remove non-dc portions.

9. (Currently Amended) The apparatus of claim 8 wherein each junction of the multi-junction photodiode is designed to receive ~~receives a portion of~~ the light signals from the plurality of light sources and to produce the received light signal within a predetermined spectrum based on the light signals from the plurality of light sources, ~~the portion of the light signal received based on an associated spectra of the light signal.~~

10. (Currently Amended) The apparatus of claim 9 wherein each of the plurality of lock-in systems comprises a plurality of lock-in devices, each lock-in device being coupled to the photodetector to receive the received light signal within a predetermined spectrum for an associated junction of the multi-junction diode ~~a portion of the light signals for the plurality of light sources.~~

11. (Currently Amended) The apparatus of claim 10 wherein each lock-in device comprises:

a frequency multiplier; and

a filter, the filter coupled to the frequency multiplier;

wherein a partial intensity value for the associated one of the plurality of light sources is produced from the product of the received light signal within a predetermined spectrum for an associated junction of the multi-junction diode ~~portion light signals for the plurality of light sources~~ received by the lock-in device and the reference signal from the associated one of the plurality of light sources processed through the frequency multiplier, and filtered to remove non-dc portions.

14-21. (Canceled)

27. (Currently Amended) The apparatus of claim 1 wherein the photodetector is a first photodetector, the received light signal is a first received light signal, and the plurality of lock-in systems is a plurality of first lock-in devices, further comprising:

a second photodetector optically coupled to the plurality of light sources, the second photodetector designed to receive the light signals ~~from~~ for the plurality of light sources and to produce a second received light signal based on the light signals from the plurality of light sources;

a plurality of second lock-in devices coupled to the second photodetector to receive the second received light signal signals for the plurality of light sources, each second lock-in device further being coupled to and associated with one of the plurality of light sources to receive the reference signal from the associated one of the plurality of light sources;

wherein each second lock-in device produces a second intensity value for the associated one of the plurality of light sources based on the second received light signal signals for the plurality of light sources and the reference signal from the associated one of the plurality of light sources.

The Examiner's amendment has been made in order to comply with the 35 U.S.C 112, second paragraph and to place the application in a condition for allowance

REASONS FOR ALLOWANCE

1. Claims 1-13 and 25-27 are presently allowed.
2. The following is an examiner's statement of reasons for allowance:

The cited art of record fails to teach a light source control apparatus comprising a plurality of light sources, each light source emitting both a light signal and a reference signal, a photodetector optically coupled to the plurality of the light sources for receiving the light signals from the plurality of light sources, and to produce a received light signal based on the light signals from the plurality of light sources, and a plurality of lock-in systems coupled to the

photodetector for receiving the received light signals, each lock-in system further being coupled to and associated with one of the plurality of light sources to receive the reference signal from the associated one of the plurality of light sources wherein each lock-in system produces an intensity value for the associated one of the plurality of light sources based on the received light signals and the reference signal from the associated one of the plurality of light sources as defined in claim 1.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiry

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens, can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 26, 2008

/Trinh Vo Dinh/

Primary Examiner, Art Unit 2821